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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,685	04/17/2001	Jefferson E. Odhner	LUC 2-026-3	7184

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EXAMINER	
LAVARIAS, ARNEL C	

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/836,685	ODHNER ET AL.	
	Examiner	Art Unit	
	Arnel C. Lavarias	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/30/04,8/16/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,17 and 32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,17,32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/30/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/16/04 has been entered.

Response to Amendment

2. The amendments to Claims 1, 3, 17, and 32 in the submission dated 8/16/04 are acknowledged and accepted.

Response to Arguments

3. The Applicants' arguments filed 8/16/04 have been fully considered but they are not persuasive.

4. The Applicants argue that, with respect to newly amended Claims 1, 17, and 32, the combined teachings of Asakura, Kompfner, and Essemlali et al. fail to teach or reasonably suggest a system and method for treating optical signals from a source, including a rotatable diffractive optical element having a surface carrying a holographic diffraction grating including an array of facets, each of the facets carrying a diffraction

grating which are superimposed, each being angularly offset with respect to each other, and the rotatable diffractive optical element being rotated to distribute any of the output signals to any of the output stations. The Examiner respectfully disagrees. The Examiner notes that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). As previously noted in Section 1 of the Office Action dated 7/16/04, Asakura discloses all of the structural features of the claimed invention, including a source (See Figures 7-8 of Asakura), a movable diffractive optical element (See 92 in Figure 8 of Asakura), and output stations (See 98, 99 in Figure 8 of Asakura). Further, Asakura discloses that the movable diffractive optical element may be rotated to assist in coupling light of a desired wavelength to the output (See col. 4, line 57-col. 5, line 2 of Asakura). However, the diffractive optical element of Asakura is not a holographic diffraction grating including an array of facets, each of the facets carrying a diffraction grating which are superimposed, each being angularly offset with respect to each other. Kompfner and Essemlali et al. are being relied upon to provide the additional teachings of utilizing a movable diffractive optical element that has a surface carrying a holographic diffraction grating including an array of facets, each of the facets carrying a diffraction grating which are superimposed, each being angularly offset with respect to each other. The Examiner also points out that '(s)' has been utilized through Claims 1,

17, and 32 (e.g. grating(s), station(s), signal(s)), and that, consistent with applicants' own disclosure, this has been interpreted to mean the presence of *at least one or more of a particular element*, i.e. station(s) has been interpreted to mean at least one or more stations (See Page 4, lines 22-33 of Applicants' disclosure). Thus, according to Claims 1, 17, and 32, the recited system and method for treating optical signals from a source may include *one* of each of a holographic diffraction grating, input optical signal, output signal, and output station.

5. Claims 1, 3, 17, and 32 are rejected as follows.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 17, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asakura (U.S. Patent No. 5450512), of record, in view of Kompfner (U.S. Patent No. 4337993), of record, and Essemlali et al. (FR2538131 A1), of record.

Asakura discloses a system and method for treating optical signals from a source (See for example Figures 7-8), comprising a source (inherently, a source of light is required to generate the signals having wavelengths of λ_1, λ_2, λ_3 λ_4), a rotatable diffractive optical element (See 92 in Figure 8; col. 4, line 57-col. 5, line 2), and output stations (See 98, 99 in Figure 8), wherein the source carries input optical signals (See 90 in Figure 8), each of

said signals being associated with a particular wavelength; the rotatable diffractive optical element (See 92 in Figure 8; col. 4, line 57-col. 5, line 2) has a surface (i.e. a single facet) carrying a diffraction grating and positioned to intercept said input optical signals for generating output optical signals and distributing any output optical signals to any output optical station (See col. 1, line 39-54; col. 2, line 49-col. 3, line 18); and the output stations positioned to receive said output optical signals from the rotatable diffractive optical element (See 98, 99 in Figure 8). Asakura lacks the rotatable diffractive optical element being holographic and including an array of facets, each of the facets carrying a diffraction grating(s) which are superimposed, each being angularly offset with respect to each other. However, Kompfner teaches a holographic optical fiber coupler system (See for example Figures 1-3), wherein a series of holographic diffraction gratings superimposed in a fixed phase grating plate are used to divert light of particular orientation to a particular output optical fiber (See Figures 1-3; col. 1, line 39-54; col. 2, line 49-col. 3, line 18; col. 3, line 36-col. 4, line 20). Further, Essemlali et al. teaches a holographic coupler-switch device (See Abstract; Figures 1-2), wherein movable holographic deflecting plates comprising a series of holographic diffraction gratings (See 6, 17 in Figures 1-2) located at multiple locations (i.e. multiple facets) are used to divert light of a particular orientation and wavelength to a particular output fiber. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the rotatable diffractive optical element being holographic and including an array of facets, each of the facets carrying a diffraction grating(s) which are superimposed, each being angularly offset with respect to each other, as taught by

Kompfner and Essemlali et al., in the system and method for treating optical signals from a source of Asakura, for the purpose of increasing system speed and increasing the number of signals that may be multiplexed and demultiplexed capability of the system, since a larger number of input signals may be input and multiplexed/demultiplexed by the diffraction gratings.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asakura in view of Kompfner and Essemlali et al. as applied to Claim 1 above, and further in view of Mey et al. (U.S. Patent No. 5608278), of record.

Asakura in view of Kompfner and Essemlali et al. discloses the invention as set forth above in Claim 1, except for the rotatable diffractive optical element being provided as a magnet having a rotatable holographic diffraction grating attached to the magnet and being magnetically coupled to a coil energizable for movement of the magnet and the diffraction grating. However, Mey et al. teaches a method and apparatus for moving a diffractive optical element (See Figures 1, 3, 4), comprising a magnet (See for example 72 in Figure 3) having a holographic diffraction element (See 26 in Figure 3) attached thereto, and being magnetically coupled to a coil (See col. 4, lines 7-49) energizable for movement of the magnet and diffraction grating. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a magnetically movable diffractive optical element, as taught by Mey et al., in the system and method for treating optical signals from a source, as disclosed by Asakura in view of Kompfner and Essemlali et al. One would have been motivated to do this to utilize fewer

moving parts, thus decreasing system complexity and cost, as well as reduce system start-up torque, thus reducing the amount of power required to operate the system.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 4168107 to Sauter.

Sauter is being cited to evidence a conventional multimode optical device for coupling/switching light incident to a rotatable diffraction grating to one of a set of output optical fibers (See for example Figure 5). The system of Sauter lacks the diffraction grating being holographic.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 8:30 AM - 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Arnel C. Lavarias
11/22/04

THONG NGUYEN
PRIMARY EXAMINER
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